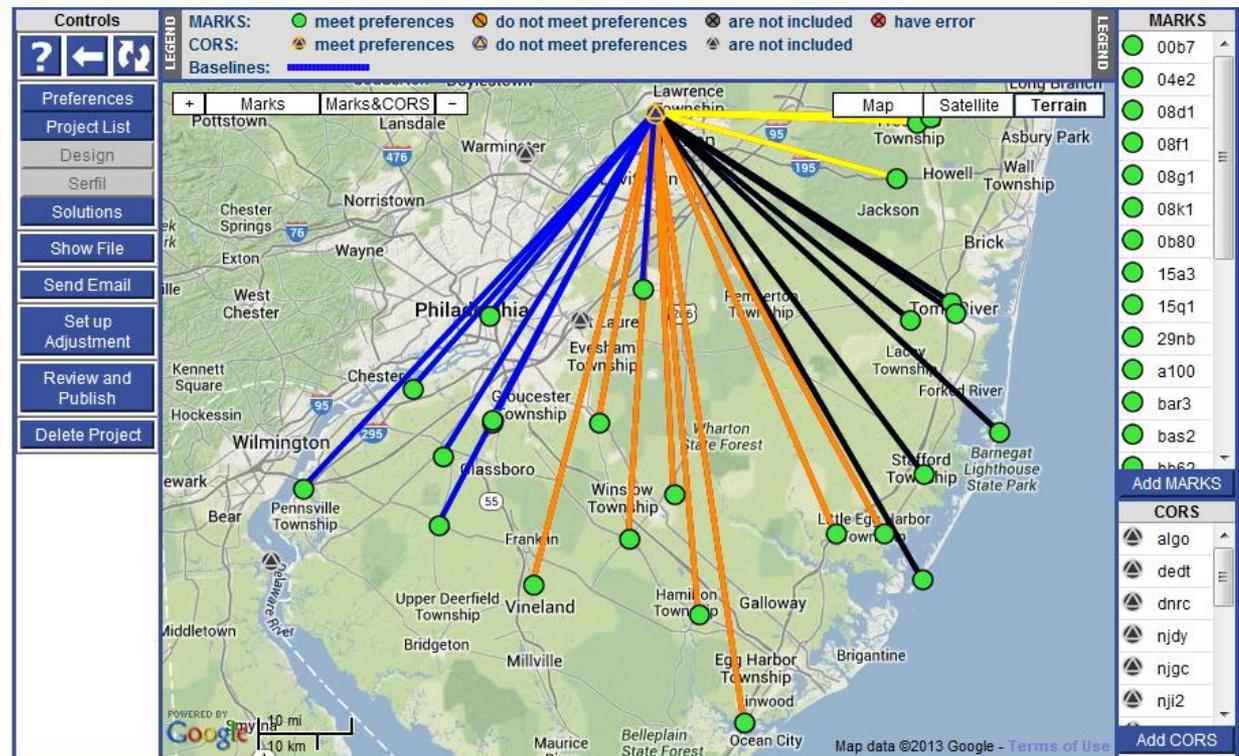


# OPUS Projects

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# What is OPUS Projects?

OPUS Projects is a follow-on to OPUS offering Web-based access to simple visualization, management and processing tools for multiple marks and multiple occupations.



# Do we *really* need another OPUS flavor?

- The practical answer is probably yes.  
The NGS, its partners and stakeholders have a history of projects whose specifications can't be entirely supported by OPUS.
- The academic answer is probably yes.  
As good as OPUS does, and that is very good indeed, sacrificing simplicity for flexibility can improve results.

# What Are The Practical Advantages?

- Faster, simpler setup
  - Data are uploaded to a project using OPUS.
    - Immediate data quality assessments on upload.
    - A project's data are consolidated in online storage.
  - The data are organized automatically.
    - Data files from a mark are automatically associated with that mark.
    - Simultaneous occupations of marks are grouped together into sessions.
  - All actions are through graphical user interfaces (GUI).

# Are There Any Other Advantages?

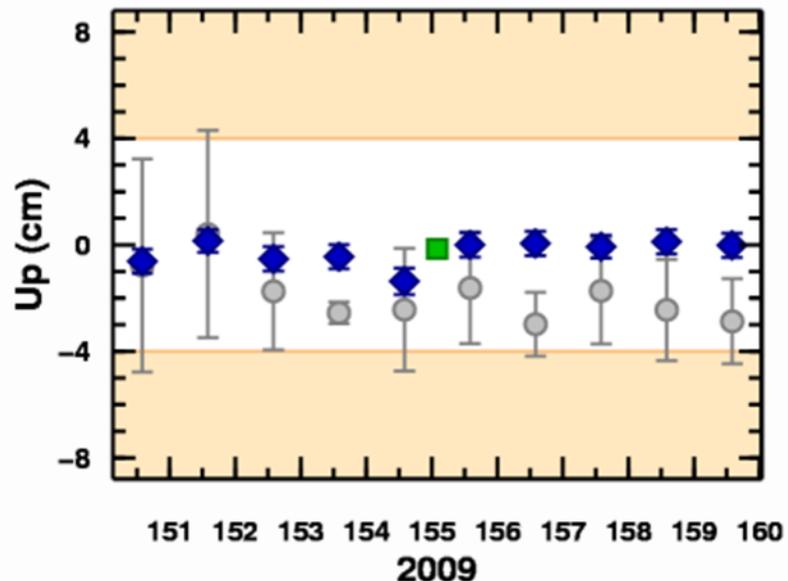
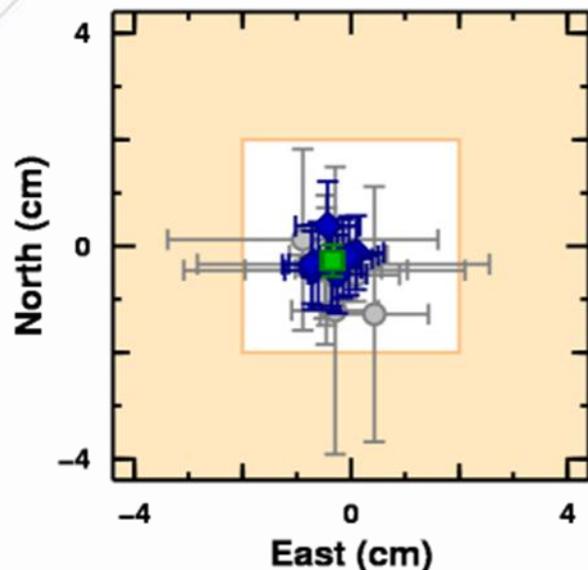
- Faster, simpler work flow
  - Software and models are always up-to-date.
  - Project specific preferences help “standardize” processing.
  - The quality of the processing results is visually indicated in maps, plots and tables.
  - Many useful files are created automatically.
    - Printable processing report summaries.
    - Initial b- and g-files for bluebooking.

# Any Limitations?

- Internet access is required.
- OPUS Static upload restrictions apply.
  - Dual-frequency pseudorange & phase.
  - $2 \text{ hrs} \leq \text{data span} \leq 48 \text{ hrs}$ .
  - Observation interval = a factor of 30 (seconds).
- Minimum project size.
  - 1 data file from 1 mark.
- Maximum project size.
  - About 100 marks in a single session.
  - Number of data files < a few hundred.

# What's all that really mean for me?

- **OPUS solutions** = pretty good, but each treated as independent and assumes “perfect” CORS.
- ◆ **sessions** = simultaneously-observed marks processed together in sessions increases consistency.
- **Adjustments** = interlinking sessions through network adjustments increases accuracy.



# G.I.G.O.

Good coordinates come from good data collected using good practices. We hope OPUS Projects can help make processing and publishing easier, but it can't spin straw into gold. Folks still need to:

- Follow their project's specifications.
- Use best practices and careful field procedures.
- Select permanent marks of public interest.



<http://gis.larc.nasa.gov/>

# OPUS Projects Training

Because of its increased complexity, training is required to be an OPUS Projects manager.

Workshops are small allowing ample time for one-on-one interaction with the instructor.

The NGS Training Center schedules workshops.

The screenshot shows the NOAA National Geodetic Survey website. The main navigation bar includes links for NGS Home, About NGS, Data & Imagery, Tools, Surveys, Science & Education, and a search box. A dropdown menu is open under 'Science & Education', listing various resources such as Datums, Ecosystems and Climate, Geodesy, Geodetic Advisors, Geodetic Resources, Geoid, GPS, Presentation Library, Publications, Remote Sensing, Research, and Workshops/Training. A large red arrow points to the 'Workshops/Training' link. Other visible content includes an 'Announcements' section with news about the Beta LOCUS User Service and the final report for the transition to the North American Datum of 2011 (NAD 83). There are also links for 'Most Popular' resources like Contact Us, CORS, and Survey Mark Datasheets, and a 'Publications' section. A sidebar on the right features a 'Federal Geodetic Control Subcommittee' logo and a 'NGS Public News Subscription Service' button.

## Let's explore a project manager's Web page.

OPUS Projects URL: <http://geodesy.noaa.gov/OPUS-Projects/>  
Project ID: hrdb86fc  
Manager Keyword: ff5d3zmu

Results From

<b>LEGEND</b>	<b>MARKS:</b> meet preferences  do not meet preferences  are not included  have error
	<b>CORS:</b> meet preferences  do not meet preferences  are not included
	<b>Baselines:</b>

Map | Satellite | **Terrain**

Map showing a network of baselines (blue lines) connecting several points (green circles) across a terrain map. The points are labeled with IDs: 2123, 2126, 2137, and 2139. The map includes labels for locations like Kentwood, Amite City, Loranger, Franklinton, Bogalusa, and Bush. A scale bar at the bottom indicates 5 miles and 5 kilometers.

**LEGEND**

<b>MARKS</b>
2123
2126
2137
2139

**LEGEND**

<b>CORS</b>
covg
dstr
base
mssc
nola

Buttons: Add MARKS, Add CORS

Navigation: ? | ← | ↻

Preferences | Project List | Design | Serfil | Solutions | Show File | Send Email | Set up Adjustment | Review | Delete Project

Map data ©2013 Google - Terms of Use

This is the manager's Web page specifically project HRDB86FC.

Results From

<b>Controls</b>  Preferences Project List Design	<b>LEGEND</b> MARKS:  meet preferences  do not meet preferences  are not included  have error CORS:  meet preferences  do not meet preferences  are not included Baselines:	<b>LEGEND</b> <b>MARKS</b> ○ 2123 ○ 2126 ○ 2137 ○ 2139
	+ Marks Marks&CORS -	
	Map Satellite Terrain	

The menu at the top of the Web page selects the type of solution or solutions for display.

Set up Adjustment

Review

Delete Project

Add MARKS

**CORS**

- covg
- dst
- hamm
- msht
- mssc
- nola

Add CORS

Map data ©2013 Google - Terms of Use

Sessions & Solutions

Results From

<b>MARKS:</b>	meet preferences	do not meet preferences	are not included	have error
<b>CORS:</b>	meet preferences	do not meet preferences	are not included	
<b>Baselines:</b>				

MARKS	
<input type="radio"/>	2123
<input type="radio"/>	2126
<input type="radio"/>	2137
<input type="radio"/>	2139

CORS	
<input type="checkbox"/>	covg
<input type="checkbox"/>	dstr
<input type="checkbox"/>	hamm
<input type="checkbox"/>	msht
<input type="checkbox"/>	mssc
<input type="checkbox"/>	nola

Sessions & Solutions

Processing in this project has been completed, so a network adjustment is displayed. But the constituent session and OPUS solutions are always available too.

Results From

**Controls**

MARKS:  meet preferences  do not meet preferences  are not included  have error

CORS:  meet preferences  do not meet preferences  are not included

Baselines:

**LEGEND**

MARKS

- 2123
- 2126
- 2137
- 2139

**LEGEND**

Terrain

**LEGEND**

ADD MARKS

CORS

- covg
- dstr
- hamm
- msht
- mssc
- nola

Amite City

Loranger

Franklinton

Bogalusa

Bush

Global Wildlife Center

Bogue Chitto State Park

Bogue Chitto National Wildlife Refuge

Harmon

Covington

55

12

5 mi

5 km

Map data ©2013 Google - Terms of Use

Sessions & Solutions

The sidebar on the left contains the controls for the manager's Web page.

Results From network-final

<b>LEGEND</b>	<b>MARKS:</b>	● meet preferences	⊗ do not meet preferences	⊗ are not included	⊗ have error
	<b>CORS:</b>	▲ meet preferences	▲ do not meet preferences	▲ are not included	
	<b>Baselines:</b>	▬			

MARKS 2123

Controls: Preferences, Project List, Design, Serfil, Solutions, Show File, Send Email, Set up Adjustment, Review, Delete Project

Map: Marks, Marks&CORS

POWERED BY Google

Sessions & Solutions

The map shows the relative location of the project's marks. As mentioned, the session solutions are completed and can be shown. The OPUS solutions can always be displayed.

Results From

**Controls** **LEGEND**

**MARKS:**  meet preferences  do not meet preferences  are not included  have error

**CORS:**  meet preferences  do not meet preferences  are not included

**Baselines:**

**LEGEND** **MARKS**

- 2123
- 2126
- 2137
- 2139

**LEGEND** **CORS**

- covg
- dst
- hamm
- msht
- mssc
- nola

**Map** **Satellite** **Terrain**

**Amite City** **Loranger** **Bogalusa** **Bush** **Global Wildlife Center** **Bogue Chitto State Park** **Bogue Chitto National Wildlife Refuge** **Harmon** **Covington**

55 12

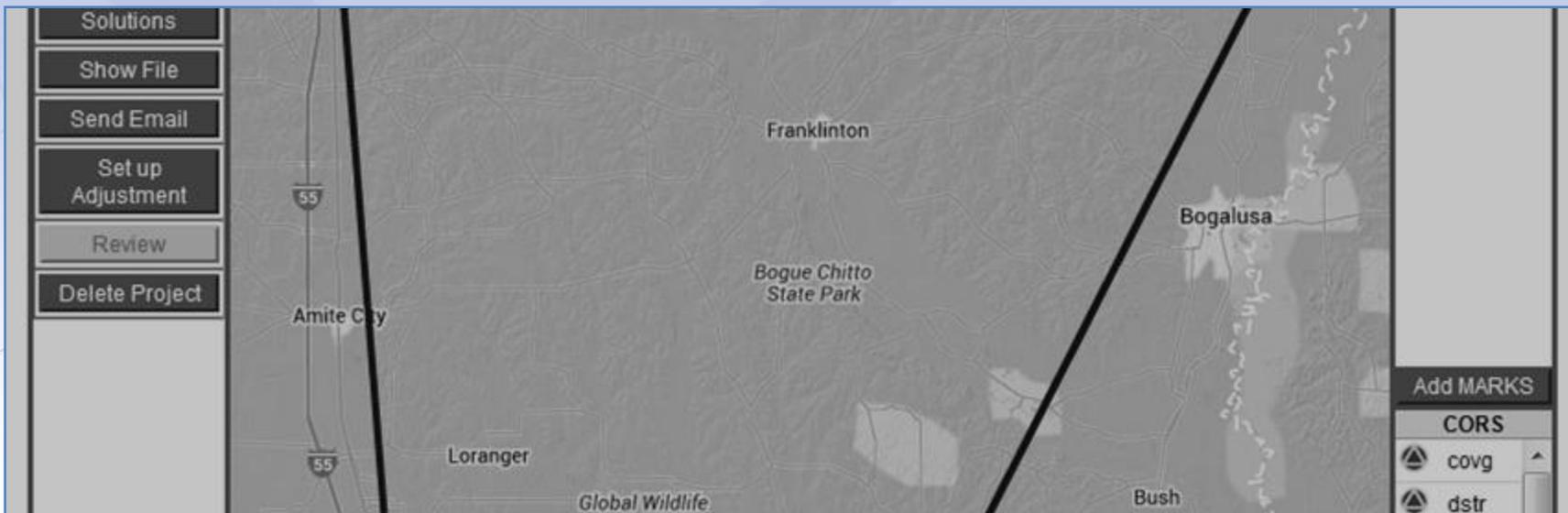
5 mi 5 km

Map data ©2013 Google - Terms of Use

**Set up Adjustment** **Review** **Delete Project**

**Sessions & Solutions**

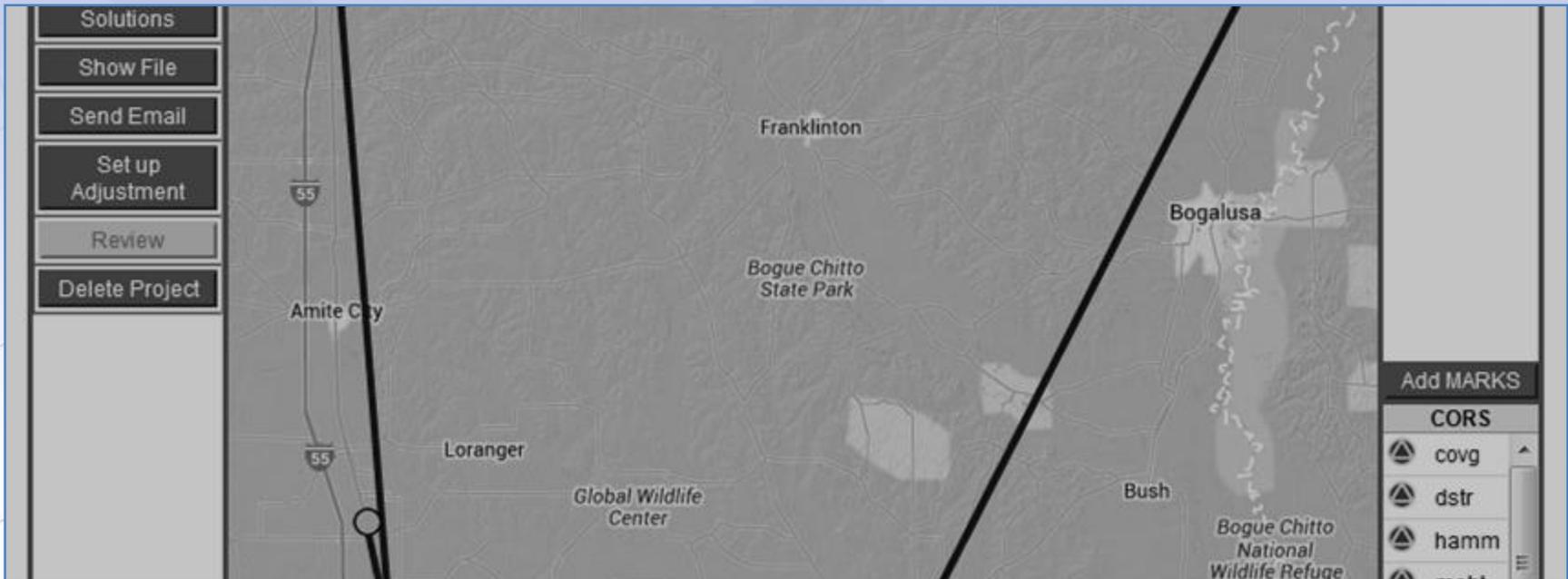
The sidebar on the right lists the marks alphanumerically, but segregated by project and CORS marks.



The table at the bottom of the Web page gives summary of the session, marks in those sessions and the quality of the solutions for the marks in the project.

MARKS	Sessions & Solutions							MARKS
	2006-274 A	2006-275 A	2006-275 B	2006-276 A	2006-276 B	2006-277 A	network final	
2123			⊗	⊗	⊗	⊗	●	2123
2126	⊗	⊗	⊗	⊗			●	2126
2137	⊗		⊗	⊗			●	2137
2139			⊗	⊗	⊗	⊗	●	2139

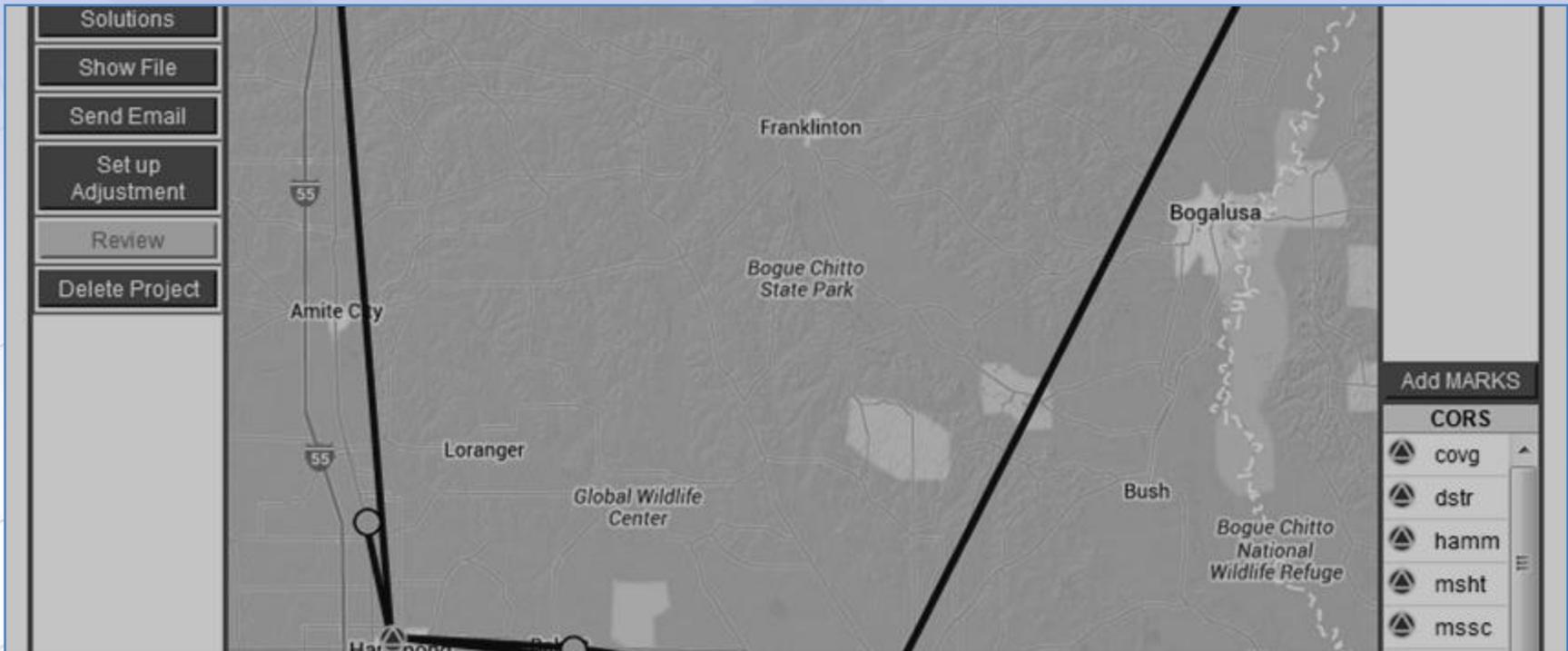
Website Owner: National Geodetic Survey / Last modified by OPUS Projects team Sep 17 2013



The summary table is also a navigation tool to other Web pages in the project.

MARKS	Sessions & Solutions							MARKS
	2006-274 A	2006-275 A	2006-275 B	2006-276 A	2006-276 B	2006-277 A	network final	
2123			⊗	⊗	⊗	⊗	●	2123
2126	⊗	⊗	⊗	⊗			●	2126
2137	⊗		⊗	⊗			●	2137
2139			⊗	⊗	⊗	⊗	●	2139

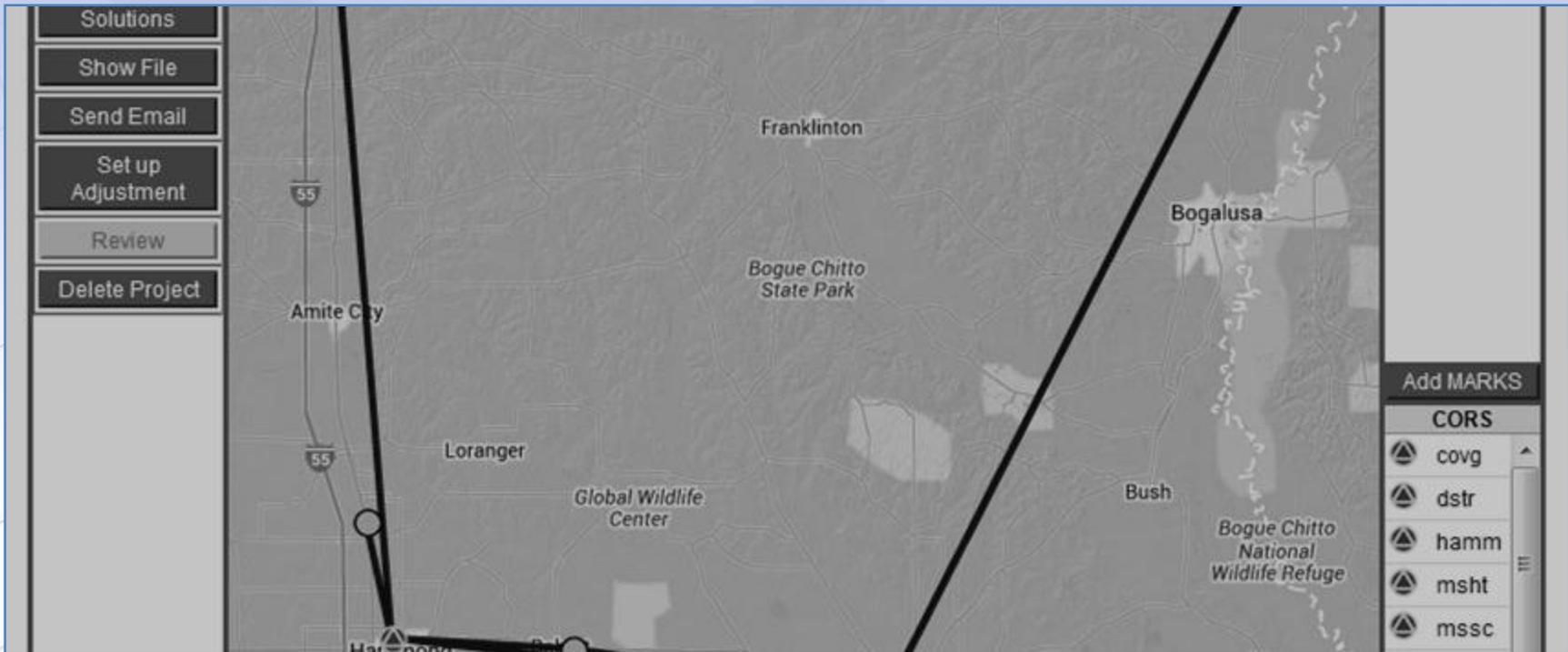
Website Owner: National Geodetic Survey / Last modified by OPUS Projects team Sep 17 2013



The column headers are links to individual sessions.

MARKS	Sessions & Solutions						network final	MARKS
	2006-274 A	2006-275 A	2006-275 B	2006-276 A	2006-276 B	2006-277 A		
2123			⊗	⊗	⊗	⊗	○	2123
2126	⊗	⊗	⊗	⊗			○	2126
2137	⊗		⊗	⊗			○	2137
2139			⊗	⊗	⊗	⊗	○	2139

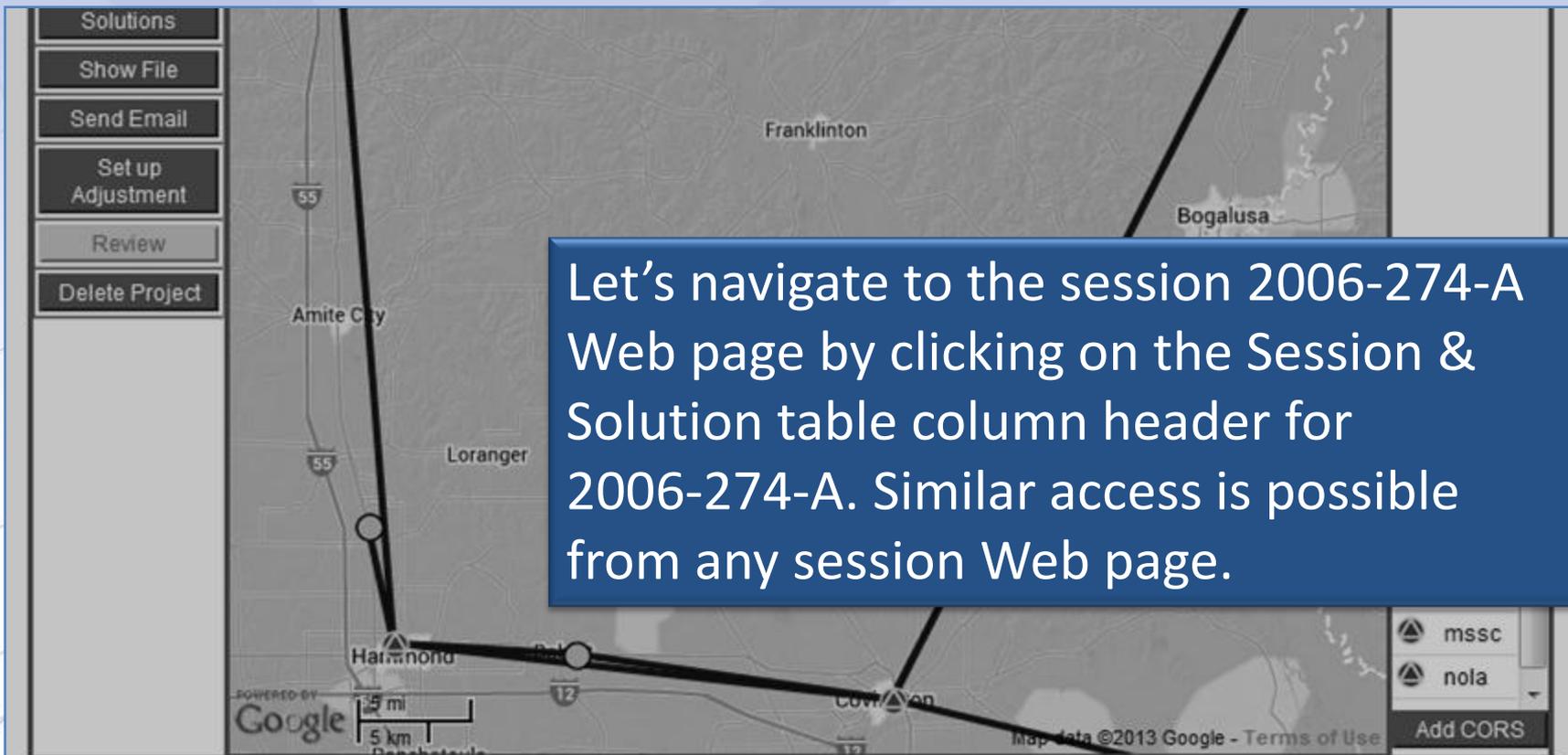
Website Owner: National Geodetic Survey / Last modified by OPUS Projects team Sep 17 2013



The row headers are links to individual marks.

MARKS	Sessions & Solutions							MARKS
	2006-274 A	2006-275 A	2006-275 B	2006-276 A	2006-276 B	2006-277 A	network final	
<a href="#">2123</a>			⊗	⊗	⊗	⊗	○	<a href="#">2123</a>
<a href="#">2126</a>	⊗	⊗	⊗	⊗			○	<a href="#">2126</a>
<a href="#">2137</a>	⊗		⊗	⊗			○	<a href="#">2137</a>
<a href="#">2139</a>			⊗	⊗	⊗	⊗	○	<a href="#">2139</a>

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MARKS	Sessions & Solutions							MARKS
	2006-274 A	2006-275 A	2006-275 B	2006-276 A	2006-276 B	2006-277 A	network final	
2123			⊗	⊗	⊗	⊗	○	2123
2126	⊗	⊗	⊗	⊗			○	2126
2137	⊗		⊗	⊗			○	2137
2139			⊗	⊗	⊗	⊗	○	2139

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Near the top of the Web page, the session pull-down menu can be used to select another session to view/work with.

Session : 2006-274-A Results From : OPUS Solutions

**MARKS:**  meet preferences  do not meet preferences  are not included  have error  
**CORS:**  meet preferences  do not meet preferences  are not included  
 Baselines:

Manager's Page  
 Show File  
 Send Email  
 Set up Processing

Legend: MARKS: 2126, 2137

Map | Satellite | Terrain

Add MARKS  
**CORS**  
 bill  
 covg  
 dstr  
 hamm  
 mdo1  
 msht  
 mssc  
 Add CORS

Map data ©2013 Google - Terms of Use

The controls, map and mark lists mimic the manager's Web page but are specific to this project only.

Session : 2006-274-A Results From : OPUS Solutions

**Controls**

Manager's Page

Show File

Send Email

Set up Processing

**LEGEND**

**MARKS:** ● meet preferences ● do not meet preferences ● are not included ● have error

**CORS:** ▲ meet preferences ▲ do not meet preferences ▲ are not included

**Baselines:** ██████████

MCComb

Map Satellite Terrain

Kennerd

Amite City

5 mi / 5 km

Map data ©2013 Google - Terms of Use

**LEGEND**

**MARKS**

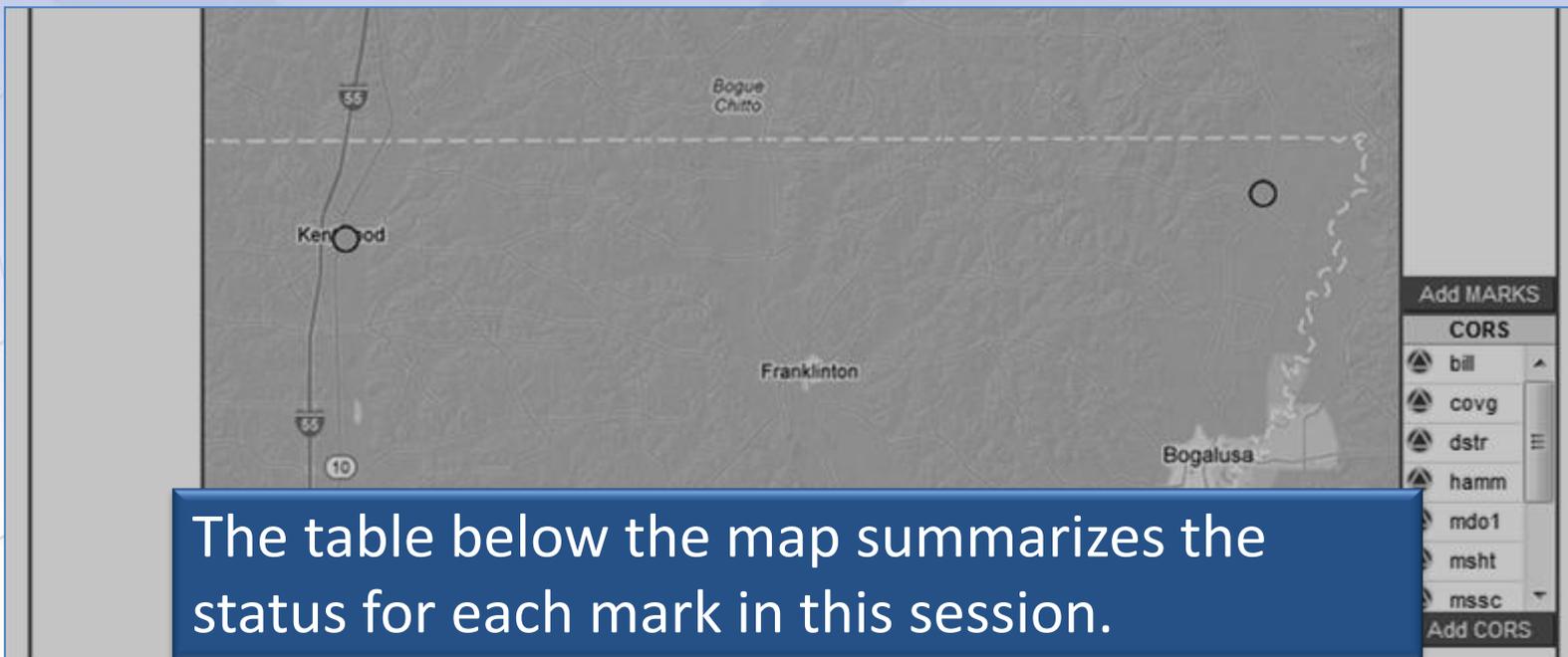
- 2126
- 2137

**Add MARKS**

**CORS**

- ▲ bill ▲
- ▲ covg ▲
- ▲ dstr ▲
- ▲ hamm ▲
- ▲ mdo1 ▲
- ▲ msht ▲
- ▲ mssc ▲

**Add CORS**



The table below the map summarizes the status for each mark in this session.

**Solution Quality Indicators**

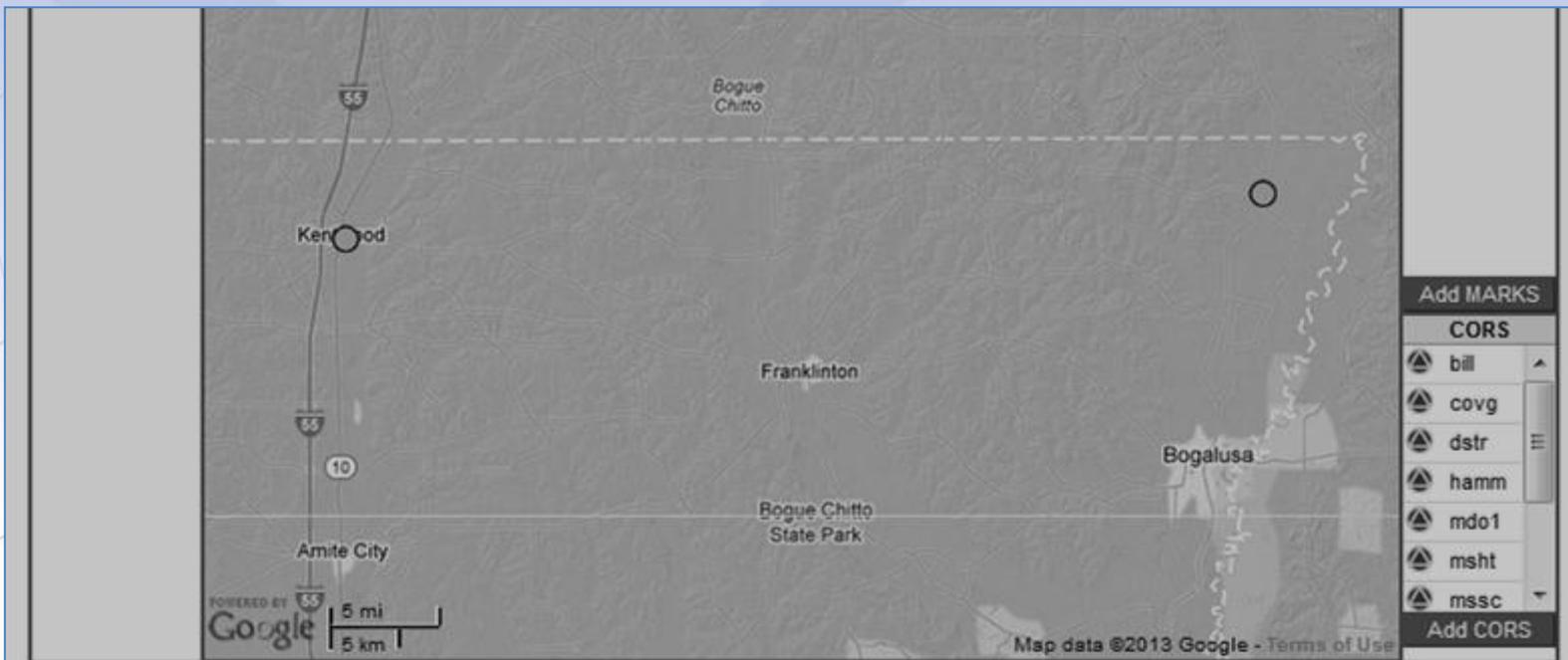
MARKS	ANTENNA	HEIGHT (m)	EPH TYPE	OBS (%)	FIXED (%)	RMS (m)	LAT (m)	LON (m)	HGT (m)	
2126	TRM41249.00	NONE	2.000	precise	98.6	85.7	0.012	0.017	0.015	0.021
2137	TRM55971.00	NONE	2.000	precise	95.5	86.5	0.015	0.015	0.010	0.023
PREFERENCES:			Best Available	≥80.0	≥80.0	≤0.025	≤0.020	≤0.020	≤0.040	

**Data Availability**

2006-10-01T20:00:00 GPST to 2006-10-02T02:00:00 GPST in 10 minute cells

MARKS	2006-10-01				2006-10-02	
	20	21	22	23	00	01
2126	0	0	0	0	7	7
2137	7	7	7	7	7	7

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Solution Quality Indicators

MARKS	
2126	○ TRM4
2137	○ TRM5

The table below at the bottom of the Web page graphically represents the data availability.

Data Availability

2006-10-01T20:00:00 GPST to 2006-10-02T02:00:00 GPST in 10 minute cells

MARKS	2006-10-01										2006-10-02																							
	20	21	22	23	00	01																												
2126	○	0	0	0	0	0	0	0	0	0	0	0	7	7	8	8	8	7	8	8	8	7	7	7	7	8	7	7	8	8	7	0		
2137	○	7	7	7	7	8	7	8	7	8	8	9	9	A	A	8	8	8	8	9	8	8	8	7	7	7	8	8	8	7	8	8	7	7

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Let's go to a mark summary Web page. To navigate to the 2126 Web page, click on the Data Availability table row header for Mark 2126. Remember that similar access is possible from any session Web page which includes this mark and the project manager's Web page.

Add MARKS

CORS

- bill ▲
- covg
- dstr ☰
- hamm
- mdo1
- msht
- mssc ▼

Add CORS

**Solution Quality Indicators**

MARKS	ANTENNA	HEIGHT (m)	EPH TYPE	OBS (%)	FIXED (%)	RMS (m)	LAT (m)	LON (m)	HGT (m)	
2126	<input type="radio"/> TRM41249.00	NONE	2.000	precise	98.6	85.7	0.012	0.017	0.015	0.021
2137	<input type="radio"/> TRM55971.00	NONE	2.000	precise	95.5	86.5	0.015	0.015	0.010	0.023
PREFERENCES:				Best Available	≥80.0	≥80.0	≤0.025	≤0.020	≤0.020	≤0.040

**Data Availability**

2006-10-01T20:00:00 GPST to 2006-10-02T02:00:00 GPST in 10 minute cells

MARKS	2006-10-01					2006-10-02	
	20	21	22	23	00	01	
2126	<input checked="" type="radio"/>	000000000000000000	77888788887777778778870				
2137	<input type="radio"/>	77777878778899A	88889888777788878877				

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**Controls**  

MARK 2126
Project Marks, Project CORS, Published Marks

+ This Mark
All Marks
Marks&CORS
-

Map
Satellite
Terrain

Manager's Page

Show File

Send Email

Change Mark ID

Remove Mark

Verify

MARK 2126
Datasheet Mock-up

Upload A Photo
Save Description

Description	
<b>PID</b>	
<b>stamping*</b>	H 393 2006
<b>name*</b>	H 393 2006

Here's the Web page for mark 2126. The individual mark Web pages are the busiest, so I'll only describe the contents generally.

<b>specific setting</b>	
<b>description*</b>	MARK IS 23.6 FT (7.2 M) SOUTH OF THE CENTERLINE OF LA-438, 151.4 FT (46.25 M) EAST OF THE CENTERLINE OF LA-21, 76.3 FT (23.25 M) WEST

Close-up View

Horizon View

**Controls**

?
←
↺

Manager's Page

Show File

Send Email

Change Mark ID

Remove Mark

Verify

MARK 2126
Project Marks, Project CORS, Published Marks,

+ This Mark All Marks Marks&CORS -
Map Satellite Terrain

Map data ©2013 Google - Terms of Use

MARK 2126
Datasheet Mock-up
Upload A Photo
Save Description

Description	
PID	<input type="text"/>
stamping*	H 393 2006
name*	H 393 2006

description

MARK IS 23.6 FT (7.2 M) SOUTH OF THE CENTERLINE OF LA-438, 131.4 FT (46.25 M) EAST OF THE CENTERLINE OF LA-21, 76.3 FT (23.25 M) WEST

428 chars

Close-up View

Horizon View

At the top are controls. Several of these should be familiar to you now, but several are new. You can change this mark's four character ID, remove it entirely from the project.

Controls

MARK 2126

Project Marks, Project CORS, Published Marks

This Mark All Marks Marks&CORS

Map Satellite Terrain

Manager's Page

Show File

Send Email

Change Mark ID

Remove Mark

Verify

POWERED BY Google

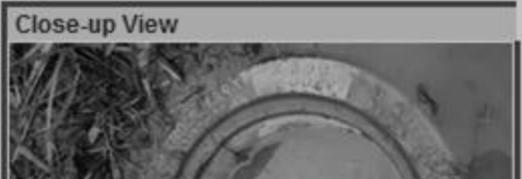
1000 ft  
200 m

Map data ©2013 Google - Terms of Use

MARK 2126 Datasheet Mock-up

Upload A Photo Save Description

Description	
PID	
stamping*	H 393 2006
name*	H 393 2006

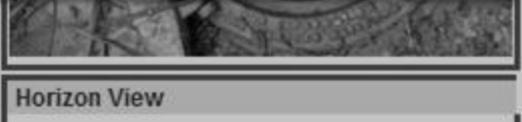


Repeated throughout the Web page is a control to switch to another mark.

specific setting

description\* MARK IS 23.6 FT (7.2 M) SOUTH OF THE CENTERLINE OF LA-438, 151.4 FT (46.25 M) EAST OF THE CENTERLINE OF LA-21, 76.3 FT (23.25 M) WEST

428 chars



**Controls**  

?
←
↺

Manager's Page

Show File

Send Email

Change Mark ID

Remove Mark

Verify

MARK 2126
Project Marks,
Project CORS
Published Marks,

+ This Mark
 All Marks
Marks&CORS
-

Map
Satellite
Terrain

MARK 2126 Datasheet Mock-up

Upload A Photo Save Description

Description	
PID	<input type="text"/>
stamping*	H 393 2006
name*	H 393 2006



Note that this map can have a new icon: triangles. These indicate nearby published marks. You can click the icon to view the datasheet for a published mark or specify that this mark is the published mark.

MARK 2126 Datasheet Mock-up

Upload A Photo

Save Description

Description	
PID	
stamping*	H 393 2006
name*	H 393 2006
type*	R = Rod
	F = Flange-encased rod
	Rod Depth*: <input type="text" value="31.7"/> Sleeve Depth: <input type="text" value="0.9"/> <input type="radio"/> Feet <input checked="" type="radio"/> Meters
setting*	59 = Stainless steel rod in sleeve (10FT+ or 3.048M+)
	specific setting
description* <small>428 chars (500 chars max)</small>	MARK IS 23.6 FT (7.2 M) SOUTH OF THE CENTERLINE OF LA-438, 151.4 FT (46.25 M) EAST OF THE CENTERLINE OF LA-21, 76.3 FT (23.25 M) WEST OF WEST RAIL OF RAILROAD TRACKS, 109.0 FT (33.25 M) EAST OF A POWER POLE WITH TWO TRANSFORMERS NUMBER 113, AND 0.8 FT (0.24 M) NORTH OF A CARSONITE WITNESS POST. ACCESS TO MARK IS THROUGH A 5 INCH (13 CM) PVC PIPE AND LOGO CAP. SLEEVE DEPTH DOES NOT MEET SPECIFICATIONS FOR A CLASS A MARK.
stability	B = Monument will probably hold position well

Close-up View



Horizon View



Scrolling down the Web page, we find a description for this mark. Often, this information is provided when the data file is uploaded, but, because we accessed this mark as the project manager, we could modify this information.

SPECIFICATIONS FOR A CLASS A MARK.

stability B = Monument will probably hold position well

magnetic I = Marker is a steel rod

application --- no selection ---

condition  Good condition  Poor, disturbed, mutilated, requires maintenance

\* required fields



MARK 2126 Occupations

Manage Data Files Save Occupations

DATA FILE	SPAN		HARDWARE			
2126274w.06o	Start	2006-10-01T22:07:00 GPS	Antenna	Model: TRM41249.00 NONE	S/N: 60129898	Height (m): 2.000
	End	2006-10-02T01:45:00 GPS	Receiver	Model: TRIMBLE R7	S/N: 0220390632	Firmware:
2126275g.06o	Start	2006-10-02T06:07:00 GPS	Antenna	Model: TRM41249.00 NONE	S/N: 60129898	Height (m): 2.000
	End	2006-10-02T10:02:45 GPS	Receiver	Model: TRIMBLE R7	S/N: 0220390632	Firmware:
2126275w.06o	Start	2006-10-02T22:24:45 GPS	Antenna	Model: TRM41249.00 NONE	S/N: 60129898	Height (m): 2.000
	End	2006-10-03T01:07:30 GPS	Receiver	Model: TRIMBLE R7	S/N: 0220390632	Firmware:
2126276g.06o	Start	2006-10-03T06:24:45 GPS	Antenna	Model: TRM41249.00 NONE	S/N: 60129898	Height (m): 2.000
	End	2006-10-03T10:44:45 GPS	Receiver	Model: TRIMBLE R7	S/N: 0220390632	Firmware:

Next on the Web page is a summary of the occupation information for this mark. Again, because we accessed this mark as the project manager, we can modify this information.

EAST LON: E270:11:25.66845 ±0.000 m    E270:11:25.69345 ±0.000 m    EASTING: 1143585.377 m    231641.  
 WEST LON: W089:48:34.33155 ±0.000 m    W089:48:34.30655 ±0.000 m    CONVERGENCE: 0.76192120°    -1.44646705

2126275w.06o	Start	2006-10-03T01:07:30 GPS	Antenna	Model: TRM41249.00 NONE	S/N:	60129898	Height (m):	2.000
	End	2006-10-03T01:07:30 GPS	Receiver	Model: TRIMBLE R7	S/N:	0220390632	Firmware:	
2126276g.06o	Start	2006-10-03T06:24:45 GPS	Antenna	Model: TRM41249.00 NONE	S/N:	60129898	Height (m):	2.000
	End	2006-10-03T10:44:45 GPS	Receiver	Model: TRIMBLE R7	S/N:	0220390632	Firmware:	

MARK 2126 Processing Results From network-final

Manage Coordinates

Scale uncertainties by 1.0x (68.3%)

Coordinate Source: network-final

REF FRAME:	ITRF2000 (2006.7525)	NAD_83(CORS96) (2002.0000)	COORDINATE SYSTEM:	SPC 1702 LA S	UTM 16
LAT:	N30:58:00.79983 ±0.000 m	N30:58:00.78021 ±0.000 m	NORTHING:	274420.844 m	3429318.943 m
EAST LON:	E270:11:25.66845 ±0.000 m	E270:11:25.69345 ±0.000 m	EASTING:	1145585.577 m	231641.661 m
WEST LON:	W089:48:34.33155 ±0.000 m	W089:48:34.30655 ±0.000 m	CONVERGENCE:	0.76192120°	-1.44648763°
EL HGT:	14.029 ±0.001 m	15.401 ±0.001 m	POINT SCALE:	1.00006765	1.00048843
X:	18196.361 ±0.000 m	18197.029 ±0.000 m	COMBINED FACTOR:	1.00006523	1.00048601
Y:	-5473862.744 ±0.001 m	-5473864.229 ±0.001 m	U.S. NATIONAL GRID:	16RBV3164229319(NAD 83)	
Z:	3262753.522 ±0.001 m	3262753.710 ±0.001 m			
ORTHO HGT:	44.264 ±0.071 m (H = h - N WHERE N = USGG2009 HGT)				

DATA FILE	ANTENNA	HEIGHT (m)	EPH TYPE	OBS (%)	FIXED (%)	RMS (m)	LAT (m)	LON (m)	HGT (m)	SOLUTION
2126274w.06o	TRM41249.00 NONE	2.000	precise	97.9	98.9	—	0.000	0.000	0.001	network-final
2126275g.06o	TRM41249.00 NONE	2.000	precise	97.9	98.9	—	0.000	0.000	0.001	network-final
2126275w.06o	TRM41249.00 NONE	2.000	precise	97.9	98.9	—	0.000	0.000	0.001	network-final

Next, we can review the processing results for this mark.

MARK 2126 Processing Results Plots

Scale uncertainties by 1.0x (68.3%) Show preferences network session OPUS published.

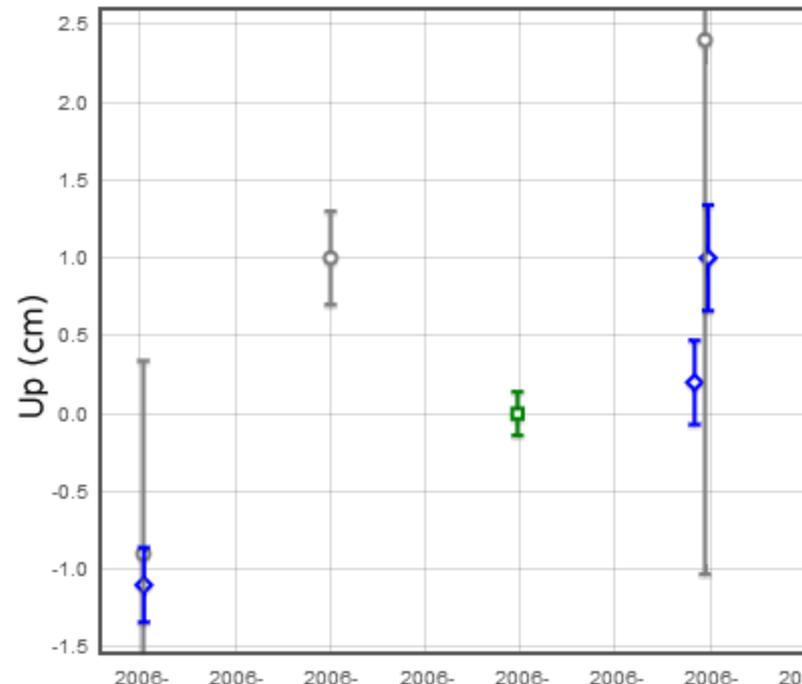
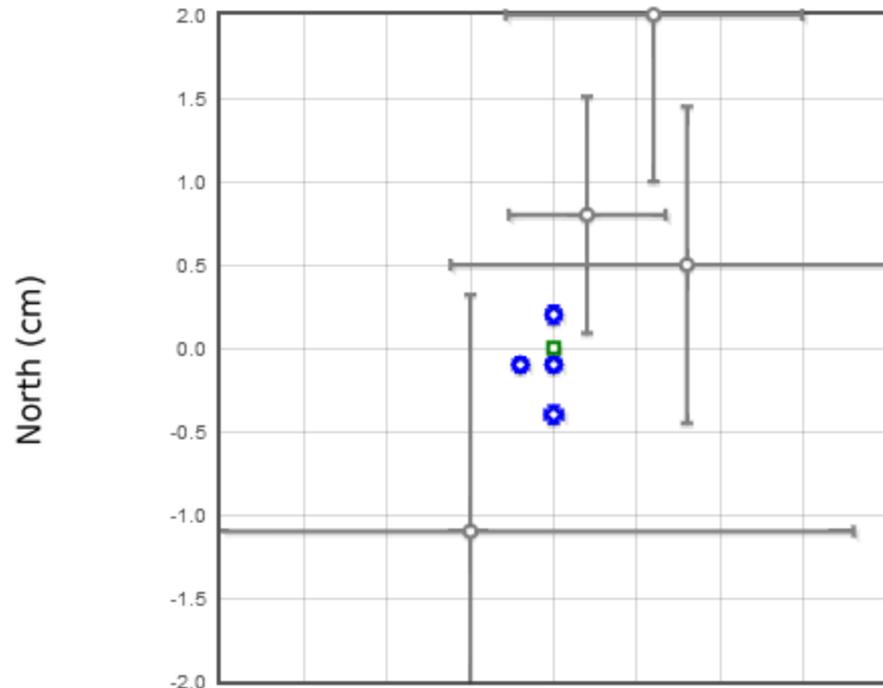
The "zero" point coordinates, N30:58:00.80051, W089:48:34.33150, 14.028 m el. height, are the mean of all network adjustments.



MARK 2126 Processing Results Plots

Scale uncertainties by 1.0x (68.3%) Show preferences network session OPUS published.

The "zero" point coordinates, N30:58:00.80051, W089:48:34.33150, 14.028 m el. height, are the mean of all network adjustments.



At the bottom are interactive plots and tables summarizing all the processing results for this mark: OPUS results from the uploads, session Solutions and Network Adjustments. Project preferences are indicated, but, in this case, the results are all within those preferences.

# OPUS Projects

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